

WHAT IS CLAIMED IS:

1 1. A multiple bandwidth antenna assembly comprising:
2 a helical radiator having at least a first helical pitch and a second
3 helical pitch;
4 a core plug having a first axial piece and a second axial piece that
5 abut one another; and
6 a first recessed pattern configured on said first axial piece to engage
7 at least said first helical pitch and a second recessed pattern configured on said
8 second axial piece to engage at least said second helical pitch.

1 2. The multiple bandwidth antenna assembly of claim 1 wherein said
2 first axial piece and said second axial piece are configured to couple with one
3 another.

1 3. The multiple bandwidth antenna assembly of claim 1 wherein said
2 first axial piece and said second axial piece threadedly engage one another.

1 4. The multiple bandwidth antenna assembly of claim 1 wherein said
2 first axial piece and said second axial piece engage one another in a snap-fit
3 engagement.

1 5. The multiple bandwidth antenna assembly of claim 1 wherein medial
2 ends of each of said first and second axial pieces are configured to matingly
3 engage one another.

1 6. The multiple bandwidth antenna assembly of claim 1 wherein medial
2 ends of each of said first and second axial pieces are configured to frictionally
3 engage one another.

1 7. The multiple bandwidth antenna assembly of claim 1 wherein medial
2 ends of each of said first and said second axial pieces are configured to be in
3 abutment with one another.

1 8. The multiple bandwidth antenna assembly of claim 1 wherein medial
2 ends of each of said first axial piece and said second axial piece are held in
3 engagement by adhesion.

1 9. The multiple bandwidth antenna assembly of claim 1 wherein said
2 first helical pitch creates resonance at a frequency of 1575MHz and a combination
3 of said first helical pitch and said second helical pitch creates resonance between
4 806 and 941 MHz.

1 10. The multiple bandwidth antenna assembly of claim 1 wherein said
2 second axial piece is made of a relatively more elastic material than said first axial
3 piece.

1 11. The multiple bandwidth antenna assembly of claim 10 wherein said
2 second axial piece comprises Lexan 141 and said first axial piece comprises Texin
3 255.

1 12. The multiple bandwidth antenna assembly of claim 1 wherein one of
2 said first and second recessed patterns includes a second helical pitch.

1 13. The multiple bandwidth antenna assembly of claim 12 wherein said
2 second recessed pattern is configured to engage both of said first and said second
3 helical pitches.

1 14. The multiple bandwidth antenna assembly of claim 1 wherein said
2 first and second recessed patterns each include a second helical pitch.

1 15. The multiple bandwidth antenna assembly of claim 14 wherein said
2 helical radiator is configured to engage said first and second helical pitches and
3 each of said first and second recessed patterns.

1 16. A multiple bandwidth antenna assembly comprising:
2 core means having at least two pieces;
3 coupling means having a predetermined helical pitch for removably
4 coupling said at least two pieces to one another;
5 engagement means disposed on said at least two pieces and
6 configured to matingly engage said coupling means.

1 17. The multiple bandwidth antenna assembly of claim 16 wherein said
2 coupling means comprises a multiple pitch helical radiator.

1 18. The multiple bandwidth antenna assembly of claim 16 wherein said
2 engagement means comprises at least two recessed patterns.

1 19. The multiple bandwidth antenna assembly of claim 18 wherein said
2 at least two recessed patterns each include at least one helical pitch.

1 20. The multiple bandwidth antenna assembly of claim 18 wherein one
2 of said at least two recessed patterns includes a first and a second helical pitch.

1 21. The multiple bandwidth antenna assembly of claim 19 wherein one
2 of said at least two recessed patterns includes a helical pitch of 1.79 mm, and a
3 second of said at least two recessed patterns includes a helical pitch of 5.40 mm.

1 22. The multiple bandwidth antenna assembly of claim 20 wherein one
2 of said at least two recessed patterns includes a first helical pitch of 1.79 mm and a
3 second helical pitch of 2.43 mm, and a second of said at least two recessed
4 patterns includes a helical pitch of 5.40 mm.

1 23. The multiple bandwidth antenna assembly of claim 16 wherein said
2 core means comprises a plurality of pieces.

1 24. A method for assembling a multiple bandwidth antenna comprising:
2 providing a helical radiator having at least one predetermined helical
3 pitch;
4 forming a first core plug piece configured to engage a first portion of
5 said helical radiator;
6 forming a second core plug piece configured to engage a second
7 portion of said helical radiator;

8 inserting said first core plug piece into said first portion and said
9 second core plug piece into said second portion; and
10 coupling said first core plug piece to said second core plug piece.

1 25. The method of claim 24 wherein said step of coupling said first core
2 plug piece to said second core plug piece follows said step of inserting said first
3 core plug piece into said first helical pitch.

1 26. The method of claim 24 wherein said step of coupling said first core
2 plug piece to said second core plug piece occurs while said second core plug piece
3 is inserted into said second portion of said helical radiator.

1 27. The method of claim 24 wherein said step of providing a helical
2 radiator comprises providing a multiple pitch helical radiator configured to engage
3 a first core plug piece having a helical pitch of 1.79 mm and a second core plug
4 piece having a helical pitch of 5.40 mm.

1 28. The method of claim 24 wherein said step of inserting said first core
2 plug piece into said first helical pitch and said second core plug piece into said
3 second helical pitch includes inserting a leading end of said helical radiator into a
4 medial end of said first core piece.

1 29. The method of claim 28 wherein a lagging end of said helical
2 radiator is subsequently inserted into a medial end of said second core piece.
3

1 30. A method for assembling a multiple bandwidth antenna comprising:
2 preforming a helical radiator having at least one predetermined
3 pitch;

4 assembling a core plug portion into a first pitch of said helical
5 radiator; and
6 assembling a second core plug portion into a second pitch of said
7 helical radiator.

1 31. A multiple bandwidth antenna assembly comprising:
2 core means having at least two pieces;
3 a helical radiator having at least one predetermined helical pitch for
4 removably coupling said at least two pieces to one another;
5 engagement means disposed on said at least two pieces and
6 configured to matingly engage said helical radiator.